REMARKS

Claims 1-22 were pending in the application before entering this amendment.

The examiner rejects 1-3, 7-11, 13-18, and 21-22 under 35 U.S.C. § 102(b) as being anticipated by Chaddha et al. (U.S. Patent No. 5,768,535).

The examiner rejects claim 1 under 35 U.S.C. § 102(e) as being anticipated by Jiang (U.S. Patent Application Publication No. 2002/0118743).

The examiner rejects claim 17 under 35 U.S.C. § 102(e) as being anticipated by Parkkinen et al. (U.S. Patent Application Publication No. 2003/0206558).

The examiner rejects claim 17 under 35 U.S.C. § 102(e) as being anticipated by Van Der Vleuten et al. (U.S. Patent Application Publication No. 2002/0076043).

The examiner rejects claims 4-6, 12, 15, 16, 19, and 20 under 35 U.S.C. § 103 (a) as being unpatentable over Chaddha.

Claims 1-22 remain in the application after entering this amendment.

Applicant adds no new matter and requests reconsideration.

Claim Rejections Under §§ 102 and 103

The examiner rejects claims 1-3, 7-11, 13-18, 21 and 22 as old over Chaddha. Applicant disagrees for the reasons that follow.

Claim 1 recites *determining if there is enough bandwidth available to the data transmitter to transmit data in addition to the base layer already transmitted.* Claims 13 and 17 recite similar limitations.

Examiner alleges that Chaddha discloses the recited *determining* element at various passages including column 3, lines 28-35, column 3, lines 11-22 and 37-52, column 5, lines 21-30, column 7, lines 1-15, column 9, lines 27-45, and column 10, lines 25-35. But none of these passages describes determining if there is enough bandwidth available to the data transmitter in addition to the base layer already transmitted as recited in claim 1. Chaddha discloses at column 3, lines 28-35, that "[p]ackets within the embedded bit-stream preferably are prioritized with bits arranged in order of visual importance. The resultant bit stream is easily rescaled by dropping less important bits, thus providing bandwidth scalability dynamic range from a few Kbps to many Mbps." That is, although Chaddha appears to disclose an encoder where "[f]rame-rate scalability can be easily achieved by dropping frames, as at present no interframe compression is implemented...," it does not determine whether enough bandwidth is available to the transmitter to transmit data in addition to the base layer already transmitted as required by the claims. Column 6, lines 52-58. The Chaddha encoder utilizes

"[s]calable compression... important for image browsing, multimedia applications, transcoding to different formats, and embedded television standards. By prioritizing packets comprising the embedded stream, congestion due to contention for network bandwidth, central processor unit ("CPU") cycles, etc., in the dynamic environment of general purpose computing systems can be overcome by intelligently dropping less important packets from the transmitted embedded stream." Column 6, lines 58-67.

In sum, Chaddha discloses a system in which the packets within the embedded stream are prioritized in order of visual importance and the resultant bit stream is easily rescaled by dropping the less important bits. Thus, in Chaddha's system, it is unnecessary to determine if there is enough bandwidth available *to transmit data in addition to the base layer already transmitted* as recited because the less visually important packets are simply discarded in case of network congestion.

Claim 1 further recites *transmitting the enhancement layer if there is enough bandwidth available to transmit another layer.* Claims 13 and 17 recite similar limitations.

Chaddha discloses an encoder that operates independently of the decoder's capabilities and requirements. Column 3, lines 2-10. In Chaddha, "collectively, the base layer, and first and second enhancement layers comprise the single embedded bitstream that may be multicast over heterogeneous networks that can range from telephone lines to wireless transmission." Column 3, lines 23-26. Although Chaddha discloses the encoding of a particular base and enhancement layers,[1] it does not disclose their separate transmission based on a determination of available bandwidth as recited. In Chaddha, the base and enhancement layers are a "single embedded bitstream." There is no suggestion that these layers are separately and distinctly transmitted based on a determination of available bandwidth after the transmission of one of the layers (base) as recited in claim 1.

The examiner also rejects claim 1 as old over Jiang. Applicant respectfully traverses the rejection for the reasons that follow.

Claim 1 recites *determining if there is enough bandwidth available to the data transmitter to transmit data in addition to the base layer already transmitted.*

Examiner states that Jiang discloses the above limitation in Claim 1, citing paragraph 0006. But paragraph 0006 does not describe determining if there is enough bandwidth available to the data transmitter in addition to the base layer already transmitted as required by claim 1. What Jiang discloses is a "compression technique that partially compensates for

[1] The applicants note that Chaddha very particularly defines its base and enhancement layers in various portions of the patent, including the abstract, summary, column 4, lines 54-67, column 5, lines 1-30.

loss of quality involves separating the video data into two bodies of data prior to transmission: a 'base layer' and one or more 'enhancement layers.' The base layer includes a rough version of the video sequence and may be transmitted using comparatively little bandwidth. Each enhancement layer also requires little bandwidth, and one or more enhancement layers may be transmitted *at the same time* as the base layer. At the receiving end, the base layer may be recombined with the enhancement layers during the decoding process. The enhancement layers provide correction to the base layer, consequently improving the quality of the output video. Transmitting more enhancement layers produces better output video, but requires more bandwidth. Enhancement layers may contain information to enhance the color of a region of a picture and to enhance the detail of the region of a picture" (emphasis added).

The examiner cannot treat the mere appearance of the word "bandwidth" in Jiang as equivalent to the disclosure of the specific limitation recited in claim 1. Because "each enhancement layer also requires little bandwidth," Jiang teaches that "one or more enhancement layers may be transmitted *at the same time* as the base layer." But nothing in Jiang suggests the separate transmission of the base and enhancement layers, much less, the separate subsequent transmission of one or more enhancement layers based on a determination of available bandwidth after having transmitted the base layer as is recited. Applicant respectfully requests reconsideration and allowance of Claim 1.

The examiner rejects claim 17 as old over Parkkinen. Applicant disagrees for the reasons that follow.

Claim 17 recites *a scheduling operation ... configured to signal the transmission scheduler to send the base layer of data... after it is received, and configured to signal the transmission scheduler to send the at least one enhancement layer responsive to determining the bandwidth used by the transmission scheduler sending the base layer* and *wherein the scheduling operation maintains an average target bandwidth.*

Examiner alleges that Parkkinen discloses the above limitation at paragraph 0055. But Parkkinen's discloses "[t]he preference information 501 indicates the preferred combination of the core and enhancement data streams 102, 103 in the scalable encoded data stream 104, and the possible options comprise any combination from full subsidiarity (0%) to full preference (100%) to one bit-stream, including any trade-off combination therebetween. The preference information 501 is transformed into control information 401a, and this control information 401a is input to the speech and audio bit-rate control units 421, 422. The speech bit-rate control unit 421 and the audio bit-rate control unit 422 is arranged to adjust the target

bit-rates of encoding according to the preferred proportions set by the preference indication...." 0055. The preference information or "control information" is used to determine "the target combination of the core data stream and enhancement data stream." 0029. Parkkinen, thus, discloses that it first determines the initial control information, which may be "a preset default setting or it may originate, for example, from the transmitting user/terminal or from the receiving user/terminal." It then determines "the target combination of the core data stream and the enhancement data stream is determined according to the initial control information." (See e.g., paragraph 0066 and Figure 10, elements 1001, 1003, 1006, et al). Put differently, Parkkinen determines the combination of base and enhancement layers not based on the available bandwidth after having sent the base layer as required by claim 17, but rather it makes the determination based on the initial control information. Claim 17, in contrast, recites a scheduling operation that signals sending of the enhancement layer after it signals sending the base layer, responsive to a determination of the bandwidth utilized in sending the base layer, all in an effort to maintain an average target bandwidth.

The examiner rejects claim 17 as old over Van Der Vleuten. The applicant traverses the rejection for the reasons that follow.

Claim 17 recites *a scheduling operation running on the transmission scheduler and configured to signal the transmission scheduler to send the base layer of data from the output terminal of the transmission scheduler after it is received, and configured to determine the bandwidth used by the transmission scheduler sending the base layer.*

Examiner states that Van Der Vleuten cites paragraph 0032 as disclosing the scheduling operation recited in claim 17. But Van Der Vleuten teaches that "the quality information can provide the server with a good tool to perform the rate-control at transmission time...." 0032. And Van Der Vleuten also discloses that by "adding the quality information, jointly storing or transmitting multiple coded objects can be optimized in that the quality of the object can be easily taken into account." Abstract. That is, Van Der Vleuten discloses a coding system in which the quality information is added variously to the core bit stream before being jointly transmitted based "on the insight that it is easy to determine the rate of a compressed object, but that another important parameter, a quality measure, ... is not so easily determined." Paragraph 0006. Van Der Vleuten, therefore, fails to disclose the scheduling operation recited in Claim 17. Accordingly, the applicant respectfully requests reconsideration and allowance of Claims 17.

Claim 4 recites *wherein the data transmitter has a pre-set target data rate, and wherein determining if there is enough bandwidth available to the data transmitter to transmit data in addition to the base layer already transmitted comprises determining whether an average bandwidth used by the data transmitter over a last measuring period is below the pre-set target data rate.*

Examiner states that Chaddha discloses all of the above limitations except the teaching of determining whether an average bandwidth is used. Examiner further points out that Chaddha's teaching of bandwidth scalability dynamic range (column 3, lines 23-36) is equivalent to the average bandwidth recited in Claim 4. But Chaddha fails to support that the average bandwidth recited is equivalent to the bandwidth scalability dynamic range disclosed in Chaddha.

Conclusion

For the foregoing reasons, the applicant requests reconsideration and allowance of all pending claims. The applicant encourages the examiner to telephone at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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